

Remarks

In view of the above amendments and the following remarks, reconsideration and further examination are requested.

Claim 15 has been objected to as containing a minor informality. Claim 15 has been amended so as to address this informality. As a result, withdrawal of this objection is respectfully requested.

Claims 2, 5, 7, 10, 12 and 15 have been rejected under 35 U.S.C. §112, first paragraph. Claims 2, 7 and 12 have been canceled without prejudice or disclaimer to the subject matter contained therein. Claims 5, 10 and 15 have been amended so as to remove the phrase “at least one,” as well as the term “entire”. As a result, withdrawal of the rejection under 35 U.S.C. §112, first paragraph, is respectfully requested.

Claims 5, 10 and 15 have been rejected under 35 U.S.C. §112, second paragraph. Claims 5, 10 and 15 have been amended so as to address this rejection. As a result, withdrawal of the rejection under 35 U.S.C. §112, second paragraph, is respectfully requested.

Claims 1-4, 6-9, and 11-14 have been rejected under 35 U.S.C. §102(b) as being anticipated by Wilhelm (US 5,715,327). Claims 1-15 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Wilhelm in view of Sammack (US 2001/0041347).

Claims 1, 6 and 11 have been amended so as to further distinguish the present invention from these references. As a result, the above-mentioned rejections are submitted to no longer be applicable for the following reasons.

Claim 1 is patentable over Wilhelm and the combination of Wilhelm and Sammack, since claim 1 recites an evaluation apparatus having, in part, a condition pass/fail determining unit for deleting a linear structure of a cell having the linear structure extending from a main body of a soma from an image of a biological sample and determining whether a measuring area set as a numerical data acquiring area in the image of the biological sample has a number of main bodies, as a number of somas, that meets a predetermined condition for acquiring numerical data. Neither Wilhelm nor the combination of Wilhelm and Sammack discloses or suggests a condition pass/fail determining unit as recited in claim 1.

Wilhelm discloses an apparatus for determining whether a slide is suitable for processing. The apparatus has an imaging system 502, a motion control system 504, an image processing system 536, a central processing system 540, and a workstation 542. The imaging system 502 includes an illuminator 508, imaging optics 510 including an automated microscope 511, a CCD camera 512, an illumination sensor 514, and an image capture and focus system 516. The motion control system 504 has a tray handler 518, a microscope stage controller 520, a microscope stage controller 522, a calibration slide 524, and motor drivers 526 for positioning a slide under the optics 510. (See column 3, line 47 – column 4, line 10 and Figures 1A and 1B).

During slide suitability testing, the central computer 540 controls the microscope 511 and acquires and digitizes images from the microscope 511. The central computer 540 also controls the microscope stage to position the specimen under the microscope objective, and one to fifteen field of view processors 568 which receive images under control of the computer 540. The processor 540 computes a suitability score that indicates whether a slide passed or failed each of thirteen suitability tests. The suitability score detects conditions under which an automated screener will have performance limitations. In order to pass and be suitable for reporting results, the slide must pass all thirteen tests. If the slide fails, the first failed test is identified. (See column 4, line 23 – column 5, line 27).

With regard to the thirteen tests, one of the tests is based on the percentage of a first scan list of $20\times$ images acquired in focus on the first try. During $20\times$ acquisition, the system software acquires an image and then checks how well the image was focused. If the image was not focus well enough, another attempt at acquisition is made. (See column 7, lines 44-50).

Based on the above discussion, Wilhelm discloses that (1) the motion control system 504 is capable of moving the slide under the optics 510, (2) if any of the suitability scores of the thirteen tests of the slide are unsuitable, the slide is not used, and (3) if an image from the slide is not sufficiently focused, another attempt at image acquisition is attempted. However, Wilhelm fails to disclose or suggest that the central computer 540 deletes a linear structure of a cell having the linear structure extending from a main body of a soma from an image of a biological sample and determines

whether a measuring area set as a numerical data acquiring area in the image of the biological sample has a number of main bodies, as a number of somas, that meets a predetermined condition for acquiring numerical data. As a result, Wilhelm fails to disclose or suggest the present invention as recited in claim 1.

As for the combination of Wilhelm and Sammack, Sammack discloses a system for cell screening that utilizes operator-directed parameters. In the system, the user specifies which wells of a plate the system will scan and how many fields or how many cells to analyze in each of the wells 100. During an automated scan, the system dynamically displays the scan status, including the number of cells analyzed, the current well being analyzed, images of each independent wavelength as they are acquired, and the result of a screen for each well as it is determined. The user also presets morphological selection criteria by either typing known cell morphological features into the system or by using an interactive training utility in the system. If objects of interest are found by the system, each object of interest is located in the image for further analysis 110. Further, after measuring all cell features 112, the system checks for any unprocessed objects in the current field 113. If no unprocessed objects exist, the system locates the next object for analysis. (See page 8, paragraph [0097] – page 10, paragraph, 0121] and Figure 9).

Based on the above discussion, it is apparent that Sammack discloses a system where a user can specify which wells of a plate are to be scanned and how many fields or how many cells to analyze in each of the wells. However, Sammack fails to disclose or suggest that the system deletes a linear structure of a cell having the linear structure extending from a main body of a soma from an image of a biological sample and determines whether a measuring area set as a numerical data acquiring area in the image of the biological sample has a number of main bodies, as a number of somas, that meets a predetermined condition for acquiring numerical data. As a result, it is also apparent that the combination of Wilhelm and Sammack fails to disclose or suggest the present invention as recited in claim 1.

As for claims 6 and 11, they are patentable over Wilhelm and the combination of Wilhelm and Sammack for similar reasons as set forth above in support of claim 1. That is, claims 6 and 11, like above claim 1, recite, in part, deleting a linear structure of a cell

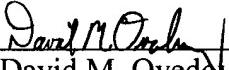
having the linear structure extending from a main body of a soma from an image of a biological sample; and judging whether a measuring area of the image of the biological sample has a number of main bodies, as a number of somas, that meets a condition for acquiring numerical data, which features are not disclosed or suggested by the references.

Because of the above mentioned distinctions, it is believed clear that claims 1, 3-6, 8-11 and 13-15 are allowable over the references relied upon in the rejections. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1, 3-6, 8-11 and 13-15. Therefore, it is submitted that claims 1, 3-6, 8-11 and 13-15 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

Kanji YAHIRO

By: 

David M. Ovedovitz
Registration No. 45,336
Attorney for Applicant

DMO/jmj
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
September 27, 2004